

AUTHOR INDEX TO VOLUME 41

A

Abraham, M. A.	337, 649
Abys, J. A.	2282
Agrawal, R.	2585
Aimar, P.	368
Ajbar, H.	2439
Akgerman, A.	2122
Akiyama, T.	1349
Alexander, P.	894
Ali, Y.	2237
Amsden, B. G.	1972
Anderson, T. J.	1045, 2198
Andreussi, P.	737
Andrews, J. R. G.	1071
Anklam, M. R.	677
Aris, R.	2393
Aurelle, Y.	1395

B

Bacchin, P.	368
Bacon, D. W.	1251
Banerjee, S.	737
Barbari, T. A.	795
Barnes, A.	1171
Basak, S. K.	2499
Basaran, O. A.	1629
Basić, A.	301
Beckman, E. J.	357
Bell, A. T.	1266
Belloli, A.	2250
Benjamin, D. F.	1045, 2198
Benneker, A. H.	2029
Bennett, D. L.	2067
Bennington, C. P. J.	2603
Bequette, B. W.	135
Bergel, A.	1944
Beris, A. N.	742
Berman, J.	1667
Bertuccio, A.	1964
Bi, H. T.	267
Biddulph, M. W.	819
Biondi, S. A.	1324
Blanch, H. W.	996, 2150
Blankschtein, D.	991
Block, J. H.	1543
Bolio, E. J.	1375
Boluda-Botella, N.	185
Bontozoglou, V.	241
Bourdin, V.	2047
Bousfield, D. W.	1357
Bowen, B. D.	415
Brady, J. W.	959
Brennecke, J. F.	1306
Brock, E. E.	1723, 1874
Brouwers, H. J. H.	1821
Brown, M. A.	205
Bruinsma, O. S. L.	828
Buettner, H. M.	691
Burban, J. H.	159, 907, 1165
Burganos, V. N.	272, 1122
Busch, N. A.	974

C

Cabral, J. M. S.	764
Cagliostro, D. E.	1037
Calabrese, R. V.	1
Cao, G.	324
Cao, Z.	1833
Carley, J. F.	446
Carr, R. W.	200
Castellari, A. T.	1593
Catino, C. A.	97
Cerro, R. L.	337, 649
Chakrabarti, M.	2356
Chakraborty, A. K.	2667
Chan, C.	2513
Chang, H.-C.	1898
Chao, K.-C.	1602
Chaouki, J.	439
Chateaufort, J. E.	1306
Chatzi, E. G.	1640
Chen, C.-C.	1015
Chen, P.-C.	68
Chen, S. C.	2661
Chen, Y.	1025
Chen, Y. C.	2661
Chen, Y.-T.	2261, 2274
Chen, Z. A.	469
Cheng, C.-S.	2227
Cheng, N. T.	2661
Cheng, S.	1598
Cheung, M. K.	251
Chhabra, R. P.	728
Chiew, Y. C.	974, 2150
Chimowitz, E. H.	389, 2300
Ching, C. B.	1146
Choo, C.-u.	1426
Chou, Y.-S.	2565
Chung, C.-B.	122
Churchill, S. W.	205, 1061, 2341, 2513
Chylla, R. W.	1354
Clancy, P.	959
Coen, C. J.	996
Cohen, D. S.	2345
Comtat, M.	1944
Cong, D. Z.	1153
Cooney, C. L.	723
Cooper, D. J.	110
Cooper, S. L.	2160
Corripio, A. B.	1273
Coutelieris, F. A.	1122
Coutsikos, P.	928
Cramer, S. M.	1676
Crowe, C. M.	1712
Crynes, L. L.	337, 649
Cussler, E. L.	159, 907, 1165, 1413

D

Daccord, G.	1622
Dadyburjor, D. B.	201
Daoutidis, P.	619
DasGupta, S.	2140
Datta, R.	1826

Davis, H. T.	2261, 2274
Davis, J. F.	2327
Davis, M. E.	445
Davis, R. H.	501
de la Fuente Feria, J.	1955
de Pablo, J. J.	1563
Delmon, B.	1543
Demopoulos, G. P.	171
Demos, A. T.	658
Deng, S. G.	559
Denn, M. M.	1266
Derby, J. J.	2342
Desai, R. B.	1329
Devaux, R.	1944
Dickinson, R. B.	2160
Dietsche, L. J.	1266
Dijkstra, S.	571
Dil'man, V. V.	2013, 2029
Dillon, P. O.	1653
Dixon, A. G.	58
Dixon, D. G.	805
Do, D. D.	426, 1581, 1585
Doherty, M. F.	2383
Dorfman, Y.	1113
Douek, R. S.	2508
Douglas, J. M.	2522
Drewry, H. P. G.	880
Duduković, M. P.	301
Dukler, A. E.	2040
Dye, S. R.	1456, 2427

E

Eberl, M.	1687
Eden, D. M.	1041
Edsall, J. T.	949
Edwards, D. A.	2345
Eek, R. A.	571
Eigenberger, G.	1915
El-Hamouz, A. M.	855
Elta, M. E.	658
Erdos, E.	915
Erkey, C.	2122
Esmail, M. N.	1833
Esteban, A.	1044
Eubank, P. T.	924

F

Fan, L.-S.	435, 2337
Farrell, R. J.	2318
Favelukis, M.	2637
Ferer, M.	749
Fernandes, N.	2549
Fernández-Sempere, J.	185
Fieldson, G. T.	795
Filippou, D.	171
Fletcher, C. A. J.	2187
Floarea, O.	2625
Floudas, C. A.	1798
Fogler, H. S.	658, 2487
Ford, R. M.	402
Fore, L. B.	2040

Forzatti, P.	2250
Fournier, J.	658
Frankel, S. H.	258
Frey, D. D.	1171
Frymier, P. D.	402
Fuente Feria, J. de la	1955
Fukutani, T.	1349
Furumoto, A.	1368

G

Gadam, S. D.	1676
Gallant, S. R.	1676
Ganapathy, S.	346
Garcia-Ochoa, F.	286
Gavalas, G. R.	2549
Geisbrecht, R. A.	749
Genceli, H.	2083, 2098
Gervais, P.	1346
Gilleskie, G. L.	1413
Givi, P.	258
Gladden, L. F.	894
Goel, S. K.	357
Gomis, V.	1044
Goosen, M. F. A.	1972
Gopalan, S.	1723, 1864
Göpferich, A.	2292
Gray, M. R.	2451
Greenkorn, R. A.	1602
Grenier, Ph.	2047
Groppi, G.	2250
Gudi, R. D.	2451
Guha, A. K.	1998
Guiochon, G.	45
Gupta, A.	1843
Gupta, P.	985

H

Häggbloom, K. E.	195
Hahn, C. M.	402
Hall, C. K.	985
Hall, K. R.	924
Harvey, A. D., III	2177
Haure, P. M.	1593
He, M.	159, 907
Heidemann, R. A.	737
Helwick, J. A.	1653
Hendrickson, R. L.	1184
Henson, M. A.	604
Hewitt, G. F.	2508
Hidajat, K.	1146
Hidaka, N.	1889
Hill, J. C.	2356
Hill, P. J.	1204
Hinde, R. F., Jr.	110
Hlavacek, V.	377, 1235, 1926, 2614
Ho, T. C.	1513
Holgate, H. R.	637
Hollewand, M. P.	894
Hong, J.	2653
Hounslow, M. J.	525, 591
Hrymak, A. N.	2342
Hsia, C.	435, 2337
Hsu, J. C. C.	1251
Hsyung, N. B.	1153

Hu, X.	1581, 1585
Hulin, J. P.	1622
Huq, I.	1481
Hwang, K.-J.	1443
Hwang, Y.-L.	190

I

Ilievski, D.	518, 525
Ilyashenko, V. M.	2631
Inagaki, M.	2658
Ishida, M.	2333
Isom, K. B.	1572

J

Jamaluddin, A. K. M.	1194
Jana, S. C.	1605
Jansens, P. J.	828
Jin, Y.	267
Jin, Z. L.	1602
Johnston, L. P. M.	2415
Joshi, J. B.	1329
Juncu, Gh.	2625

K

Kakoi, K.	1889
Kalospiros, N. S.	928
Kantor, J. C.	2439
Kao, A. S.	2067
Kao, Y.-K.	78
Karabelas, A. J.	241, 2371
Keenan, M. R.	2439
Keller, G. E., II	201
Kendoush, A. A.	2341
Kennedy, G.	439
Kennedy, M. W.	1194
Kerr, R. M.	2356
Kikkiniades, E. S.	509
King, J.	1015
Kiparissides, C.	1640
Klindera, T.	649
Knackstedt, M. A.	1295
Koak, N.	737
Kobayashi, Y.	2642
Koczo, K.	915
Kohav, T.	2465
Kohl, P. A.	2282
Kolhatkar, R. V.	1329
Kolios, G.	1915
Kolker, A.	1563
Kooijman, H. A.	1852
Koopman, D. C.	1321
Kosar, T. F.	701
Koska, J.	415
Kösters, P. H.	148
Koval, C. A.	2556
Kramer, M. A.	2415
Krieg, D. A.	1653
Kronberg, A. E.	2013, 2029
Kruglov, A. V.	2393
Kuehner, D.	2150
Kuipers, J. A. M.	773
Kumar, A.	619
Kwei, T. K.	166

L

Labowsky, M. J.	1081
LaCava, A. I.	1389
Ladisch, M. R.	1184, 2499
Landman, K. A.	1687
Langer, R.	2292
Larachi, F.	439
Lee, C. K.	2177
Lee, D. J.	2314
Lee, G.	1037
Lee, H. H.	1321
Lee, K.	2653
Lee, R. J.	435
Leighton, D. T.	1898
Lemanski, J.	2322
Lenhoff, A. M.	948, 1005, 1010
Levendis, Y. A.	712
Levy, Y.	1113
Li, R. J.	166
Li, T. W.	389, 2300
Li, X.	214
Li, X.-G.	1534
Liang, W. G.	267
Lin, J. J. L.	430
Lin, W. W.	2314
Lin, Y. S.	559
Lipscomb, G. G.	2322
Lira, C. T.	838
Litster, J. D.	591
Liu, C.-L.	991
Liu, X. P.	1146
Livingston, A. G.	2508
Lu, W.-M.	1443
Lucia, A.	585
Lucas, M.	1041
Ludmer, Z.	488
Luss, D.	2465
Lynn, S.	2058

M

Ma, B.-F.	1395
Ma, Y. H.	58
Macdonald, D. A.	868
Maciejowski, J. M.	1217
Macosko, C. W.	2261, 2274
Mainland, M. E.	223
Maneri, C. C.	481
Mann, R.	855
Manousiouthakis, V.	1843
Marcilla, A.	1044
Markels, J. H.	2058
Marrone, P. A.	2108
Martino, C. J.	1723
Mashelkar, R. A.	666, 1329
Mateus, M.	764
Matsumoto, T.	1889
Mavrovouniotis, M. L.	1471
McAuley, K. B.	868, 1251
McCarthy, M. J.	251
McCoy, B. J.	317, 1037, 1521
McCready, M. J.	1653
McDonald, C. M.	1798
McDonald, S. M.	959
McLellan, P. J.	868
McManus, D.	1194

McMurtry, P. A.	258
Meerdink, G.	732
Meijer, R.	773
Metaxiotou, Z. A.	812
Meunier, F.	2047
Meyer, J. C.	637, 2108
Michaelides, E. E.	12
Middleman, S.	2344
Miller, M. J.	2487
Miyabe, K.	536, 548
Mizan, T. I.	1723
Mizota, H.	1701
Molin, P.	1346
Moore, C. M. V.	723
Morari, M.	846, 1481
Morooka, S.	1889
Moser, A.	23
Müller, A. J.	1333
Munoz, F.	389, 2300
Muzzio, F. J.	691
Myerson, A. S.	166

N

Nagarajan, R.	915
Nagy, E.	23
Narasimhan, S.	2237
Narsimhan, G.	35
Nazarko, T. W.	1194
Neal, B. L.	1010
Ng, K. M.	1204, 1456, 2427
Nieken, U.	1915
Nienow, A. W.	741
Nikas, Y. J.	991
Nikitopoulos, D. E.	12
Nikolaou, M.	2083, 2098
Ninham, B. W.	1295
Noble, R. D.	2556
Nychas, S. G.	812

O

O'Brien, J. A.	346
O'Toole, E. M.	954
Odell, J. A.	1333
Ogunnaike, B. A.	604
Ohta, H.	1349
Okazaki, M.	1701
Oppenheim, S. F.	1826
Orbey, H.	683
Orlicki, D.	1235, 2614
Ott, L. L.	446
Ottino, J. M.	445, 741, 1353, 1605, 1831
Ouyang, S.	1534

P

Pal, R.	783
Panagiotopoulos, A. Z.	954, 2306
Papangelakis, V. G.	171
Paraskeva, C. A.	272
Parker, J. L.	1413
Patkar, A. Y.	415
Patrick, R. H., Jr.	649
Paulaitis, M. E.	948, 1005
Payatakes, A. C.	272, 1122
Peebles, S. M.	1273

Phillips, R.	2666
Phillips, R. J.	701
Piret, J. M.	415
Pjura, P. E.	1005
Plawsky, J. L.	2140
Ploehn, H. J.	743
Pojman, J. A.	2631
Potter, O. E.	1534
Powell, R. L.	251
Prat, M.	2212
Prausnitz, J. M.	996, 2150
Prud'homme, R. K.	677
Przybycien, T. M.	745

Q

Quinn, J. A.	1324
-------------------	------

R

Radke, C. J.	2058
Ramirez, W. F.	1217
Ramkrishna, D.	35
Ranade, V. V.	666, 1329
Randolph, T. W.	346
Rangarajan, B.	838
Raun, R. L.	1572
Ray, A. K.	938
Rebitzki, T.	1543
Redkar, S. G.	501
Retallick, W. B.	1061
Reyes, S. C.	691
Rice, R. G.	426
Richardson, J. T.	2465
Riehle, C.	738
Riggs, J. B.	122
Riley, M. R.	691
Roberts, C. B.	1306
Rode, H.	377, 1235, 2614
Rodgers, V. G. J.	1826
Rodríguez Patino, J. M.	1955
Rogers, S. E.	2177
Rollins, D. K.	2327
Rosner, D. E.	1081
Roy, C.	1500
Ruiz-Beviá, F.	185
Russo, L. P.	135
Ruth, D. W.	469

S

Sáez, A. E.	1333
Sahimi, M.	229, 456
Salada, M. C.	2476
Sams, W. N.	749
Sanchez, V.	368
Sandler, S. I.	683, 737
Sano, N.	1701
Santos, A.	286
Sathyagal, A.	35
Savage, P. E.	1723, 1864, 1874
Scheller, B. L.	1357
Schmitt, W. J.	2476
Schmitz, P.	2212
Schulze, S.	1701
Schwaber, J. S.	604
Scriven, L. E.	1045, 2198
Seaton, N. A.	880

Seureau, J.	1395
Shah, C. B.	1099
Shah, S. L.	2451
Shanbhag, P. V.	1998
Shelekhin, A. B.	58
Sheng, Y.-J.	2306
Shimizu, T.	2658
Shinbrot, T.	1353, 1831
Shing, K. S.	456
Shinnar, R.	488
Shirley, A. I.	1389
Shirvani, M.	2658
Shook, G. G.	2476
Shuai, X.	1598
Simon, V.	1281
Sinclair, J. L.	1375
Sircar, S.	1135
Sirkar, K. K.	1998
Smit, D. J.	591
Smith, D. H.	749
Smith, J. M.	1037, 1521
Soave, G. S.	1964
Sobolik, J. L.	1779
Soldati, A.	739
Solovyov, S. E.	2631
Sorensen, R. C.	1481
Souvaliotis, A.	1605
Speaker, S. M., III	2476
Sponchiado, M.	1964
Sridhar, L. N.	585
St. Pierre, G. R.	2337
Steciak, J.	712
Steiner, C. A.	805
Stephanopoulos, George	445
Stewart, W. E.	202, 1319
Stoots, C. M.	1
Strauss, I.	402
Strieder, W.	324
Strömborg, K. B.	195
Strong, J.	1171
Subramaniam, B.	317
Subramanian, R.	838
Sun, L. M.	2047
Suzuki, M.	536, 548
Swecker, J. L.	446

T

Tadmor, Z.	2637
Tai, C. Y.	68, 2227
Takahashi, R.	1349
Talmon, Y.	2637
Tamir, A.	1667
Tamon, H.	1701
Tan, S.	1471
Tan, T. C.	1025
Tandon, P.	1081
Tanguy, P. A.	1500
Targett, M. J.	1061
Tassios, D. P.	928, 2306
Tavare, N. S.	2537
Tavlarides, L. L.	1403, 1851
Taylor, D. G.	415
Taylor, R.	1852
Terry, P. A.	2556
Terwiesch, P.	1337
Tessier, P. J.-C.	2603

Tester, J. W.	637, 2108
Thiart, J. J.	1926
Thomas, C. P.	819
Thomson, W. J.	1779, 1790
Tien, C.	1426
Tiller, F. M.	1153
Tirrell, M.	445, 948
Toivonen, H. T.	195
Tong, H.	1712
Tripathi, A.	728
Trivedi, D. H.	1998
Tronconi, E.	2250
Tsai, Y.-C.	2318
Tsochatzidis, N. A.	2371
Tsouris, C.	1851
Tsuchiya, K.	1368
Tu, J. Y.	2187
Turney, M. A.	251
Tyler, M. L.	846
Tzouvaras, N.	928

U

Ullmann, A.	488
Ung, S.	2383
Ungar, L. H.	97
Unger, K.	2668

V

Vaccari, D. A.	1998
van den Berg, H.	148
van den Broeke, L. J. P.	2399
van Rensburg, N. F. J.	1341
van Rosmalen, G. M.	571, 828
van Swaaij, W. P. M.	773
van't Riet, K.	732
Varelas, C. G.	805

Varma, A.	324, 2131
Vartuli, M.	1622
Velayudhan, A.	1184
Venkataramani, R.	954
Venkatraman, S.	938
Verbrugge, M. W.	1550
Verwijs, J. W.	148
Viljoen, H. J.	1229, 1341
Vilker, V. L.	746
Vogt, K. W.	2282
Vuthandam, P.	2083

W

Wagenaar, B. M.	773
Walker, J.	2327
Wallace, K.	1229
Waller, K. V.	195
Walls, H. J.	2556
Walton, I. C.	1815
Wang, D. I. C.	1015
Wang, H.	1790
Wang, J.-W.	1071
Wang, M.	1521
Wang, R. X.	2603
Warr, G. G.	677
Wasan, D. T.	915
Waseda, Y.	1349
Wayner, P. C., Jr.	2140
Welty, J. R.	223
Wertheim, M. S.	974
Westertep, K. R.	148, 2013, 2029
Wham, R. M.	1629
White, A.	959
White, B. S.	1513
White, E. T.	518
White, L. R.	1687

Wise, D. L.	712
Wolbert, D.	1395
Wong, D. S. H.	430
Wong, L. W.	2067
Wu, Q. W.	267
Wu, W.	2565

X

Xie, T.	1251
Xu, J.	2585

Y

Yagi, J.-I.	1349
Yang, J.	1500
Yang, J. H.-K.	1165
Yang, R. T.	509
Yao, B.	1667
Yarmush, M. L.	974
Yeung, K. L.	2131
Yi, J.	1403
Yi, X.	456
Yortsos, Y. C.	214, 1099
Young, T. C.	1319
Yu, S. W.	430
Yu, Z. Q.	267
Yusana, J. A.	1375

Z

Zhan, J.	2333
Zhang, X.	1629
Zhou, L.	2122
Zhu, J.	45
Zydney, A. L.	2343

SUBJECT INDEX TO VOLUME 41

A

abrasion	1081
absorbents	509
absorption	241
absorption with chemical reaction	23
accelerated coalescence	488
acetic acid	2108
acetone	795
acoustics	205
activated carbon	1581
activation energy	377
activity coefficients	938, 2306
adaptive control	110, 195
adaptive systems	2451
adsorbate size difference	1135
adsorbed phase nonideality	1135
adsorbent heterogeneity	1135
adsorbents	2047
adsorbers	426
adsorption	45, 200, 426, 509, 536, 548, 838, 915, 959, 1122, 1146, 1165, 1266, 1389, 1413, 1581, 1585, 2393

adsorption by complexation	509
adsorption columns	2549
adsorption equilibrium constant	536
adsorption kinetics	915, 1146, 1581, 2393
aerosol reaction	2643
agglomeration	68, 518, 525
aggregation	591, 996
air cooling	1667
air displacement	2274
air-gap wet-spinning	1281
airlift reactors	2508
algebraic constrain's	619
alpha-helix nucleation	1015
alumina adsorbent preparation	559
aluminum	525
aluminum trihydroxide	518
amino acids	948, 949
ammonia	1572
angular flow	1061
annular flow	2040
annuli	2513
antifreeze polypeptides	959
antigen-antibody interaction	974

approximate solution	426, 2631
aqueous electrolyte systems	1041
ARMA controller	2439
artificial intelligence	97
associating system	974
asymmetric dynamics	190
athermal model	2306
autocatalysis	2631
axial dispersion	1889, 2013, 2029, 2465
azeotrope	2383

B

backpulsing	501
bacteria	402, 2160
bacterial adhesion	2160
bacterial migration	402
baffled mixing tanks	2177
balanced realization	1217
baroreceptor	604
batch adsorber	426

batch adsorption	426
battery	1550
Bayer process	518
bifurcation	135, 585, 868
binary diffusion	2399
biological control	604, 2451
biomaterials	2160
bioreactor	691, 1329
bioreactor control	2451
bioremediation	741
bioseparations	741
bistability	1543
bleach plants	2603
bleaching	2603
boundary-layer analysis	2341
branch and bound	1798
breakage	68, 1640
breakage equation	1204
breakdown	2487
Brownian dynamics	346
Brownian motion	229, 1324
bubble column	1889
bubble deformation	2637
bubble dissolution	2637
bubble flow	1113
bubble growth	214, 357, 2637
bubble properties	223
bubble rise velocity	1368
bubble-particle interactions	1368
bubble-train flow	337, 649
bubbles	214, 223, 337, 357, 481, 649, 1113, 1368, 2341, 2637
Burger's Equation	2342
butene isomerization, 1-	286

C

calcium carbonate	68
calcium magnesium acetate	712
capillarity	2140
capillary pressure	469
carbon	1581
carbon monoxide adsorption	559
carbonation	435
cascade of crystallizers with backmixing	828
catalysis	286, 317, 337, 1321, 1481, 1513, 1534, 1598, 1898, 2250, 2631
catalyst	649, 880, 1251
catalyst circulation	1481
catalyst coking	317
catalyst deactivation	317
catalytic combustion	2250
catalytic converters	1898
catalytic cracking units	1481
catalytic desulfurization	1513
catalytic membranes	1598
catalytic oxidation	337
catalytic reactors	1534
cautiousness	1337
cell adhesion	2160
cell suspension	764
cell-adhesion phemonema	2160
cell-biomaterial interactions	2160
centrifugal force	1833

centrifuge	469
chaos	1605, 1831
chaotic systems	1831
CHARMM modeling	959
chemical reactions	1273, 2356
chemical reactors	135
chemical selectivity	2356
chemical vapor deposition	1926, 2282
chemical vapor infiltration	1037
chemotaxis	402
chromatofocusing	1171
chromatography	45, 536, 548, 741, 1171, 1676, 2499, 2666
circulating fluidized bed	267, 1534
closest packing model	2643
coagulation	1281
coal combustion emissions	712
coal technology	200
coalescence	35, 1629, 1640
coating	2198
coefficient of quartile variation	723
coke characterization	286
coke formation	317
coke production rate	286
colloid	368
colloid science	741
combustion	324, 712, 2250
complex analysis	585
complex dynamics	1831
complexation	171, 509, 2556
complexity	1831
composites	1037, 2261, 2274
computational fluid dynamics	2177, 2356
computer modeling	2603
computer simulation	389, 985, 2300
computer-aided design	1204
condensation	241
conductance technique	2371
consolidation	1687
constraints	2083, 2098, 2439
contact line	1357
continuous crystallization	525
continuous kinetics	1521
continuous mixtures	317, 1513
continuous MSMR crystallizer	2537
continuous-mixture kinetics	317
control	110, 195, 430, 604, 619, 868, 1217, 1353, 1481, 2083, 2318, 2333, 2439, 2451, 2565
control strategy	604
controlled release	805
controller design	1217
convective diffusion	1122
convective flux	2393
convective heat transfer	2341
convective mass transfer	2341
convective-diffusion equation	229
convergence	1346
cookoff	1572
cooling	1667
copolymers	907
copper adsorption	1165
corona discharge	1701
countercurrent processes	190
countercurrent reactors	1915
creeping flows	1629

critical phenomena	166, 389, 488, 838, 2300
critical point	488
critical shear rate	677
critical solution temperature	166
cross-flow microfiltration	2212
crossflow	501, 1443, 2058
cross-flow filtration	1443
crude tower	122
crystal growth	2227
crystal-size distribution	2537
crystal structures	435
crystallization	518, 525, 571, 828, 1456, 2318, 2427, 2476, 2537
crystals	518, 2047
CSTR	1534
cubic equations of state	683, 1964
current distribution	1550
CVD	1926, 2282
CVI	1037
cylinder in crossflow	1081

D

data dimensionality reduction	1471
data quality	469
data reconciliation	1712
data rectification	2415
data validation	1712
deactivation, catalytic	286
deactivation kinetics	286
decomposition	1798
defect chemistry	2337
dehydrating rate	1349
denaturation of proteins	954
deposition	368, 1426, 1443, 2040
deposition profiles	1037
depth filtration	272
descent direction	585
design modifications	1481
detergents	907
device fabrication	200
devolatilization	2637
diffusion	58, 166, 214, 346, 456, 666, 691, 701, 732, 764, 812, 880, 1122, 1779, 1944, 2047, 2399, 2666
diffusion coefficient	185
diffusion in zeolites	58
diffusion modeling	1779
diffusion-controlled reactions	346
diffusion-reaction	1321
diffusivity	1815
diffusivity, apparent	2399
dilatant fluid	728
dilute solutions	2300
direct numerical simulation	737, 2356
direct synthesis	604
directional bonding	954
disengagement	666
disjoining pressure	2140
disjoint bifurcations	135
dispersed bubbly flow	12
dispersion	35, 229, 723, 741, 1622, 1640, 1851, 1898, 2013, 2029
dispersion nozzle	2643
displacement chromatography	45, 1676

displacement development	1676
dissolution	666
distearin	1955
distillation	190, 195, 430, 819, 1319, 1852, 2383
distillation control	195
distillation dynamics	190
distorted bubble regime	481
distributed parameter systems	2333
distribution coefficient	1146
drag	728
drag reducing polymer	1329
drift flux	12
drop breakage	1851
drop coalescence	1851
drop impact	1357
drop spreading	1357
droplet	35, 938, 1667, 1851, 2040
droplet atomization	1667
droplet coalescence	1667, 1851
droplet entrainment	2040
droplet evaporation	938
drug delivery	1972
drying	732
dual substrates	1025
dusty gas flow	1081
dynamic light scattering	812, 974
dynamic modeling	571, 868
dynamic response	2198
dynamic simulation	122, 1852, 2603
dynamic stagewise adiabatic flash algorithm	122
dynamics	122, 190, 346, 456, 571, 868, 915, 1481, 1831, 1852, 2198

E

eddy viscosity	2513
effective properties	691, 1099
eigenstructure	585
electric field	1629
electrical resistance measurement ..	301
electrochemistry	1550, 2556
electrochromatography	2499
electrodialysis	1194
electroless plating	2131
electrolyte	1563
electron attachment	1701
electrophoresis	2499
electroporation	1972
electrostatic precipitation	1629
electrostatic precipitation	737
elongational flow	1333
emission control	712, 737
emulsifier	1955
emulsion	783, 1165, 1395
end-point optimization	1337
energy distribution	1581
energy production	446
entrainment	2040
entropy generation	2314
enzyme	1944
epoxy	2261
equations of state	683, 928, 1964
equilibria	1585
equilibrium	683, 928, 1041, 1602

equilibrium reactions	2383
erosion	1081, 2292
erosion rate prediction/ correlation	1081
Escherichia coli	402
estimate uncertainty	1337
etching	658
Eulerian formulation	2187
evaporative cooling	1667
excess Gibbs free energy models ...	928
excitation diagnostics	110
excluded volume	991, 1010
extensional flow	1281
extraction	488, 1629
extractive crystallization	1456
extrusion	741

F

facilitated transport	2556
failure	1341
fermentation broth	488
fiber	1281
fiber mats	2261, 2274
fiber wetting	2274
fiber-spinning	1281
film flow	301
film model	1821
film split	1045
film tension	915
filter cake	1443
filtration	272, 501, 764, 1153, 1426, 1443, 1687
filtration resistance, average specific	1153
fingering	749
fixed-bed operation	2653
fixed-bed reactors	1915, 2625
flocculation	1687
flocculated suspensions	1687
flooded weir	1481
flooding limit	2067
flow	267, 749, 1653, 2160, 2274, 2342, 2508, 2522
flow chamber	2160
flow instability	2508
flow regime transitions	1653
flow regimes	267
flow sheets	2522
flow through porous media ..	749, 2274
fluid	1099
fluid-catalytic cracking	1481
fluid diversion	2487
fluid dynamics	2177, 2356
fluid mechanics	1, 1061, 1605, 2322, 2342
fluidization	1368
fluidization laboratory	267
fluidized bed	223, 439, 1113
fluidized-bed reactors	324
fluorescence	773
flux	2058
fly-ash	1081
foam	2487
folding intermediates	985
folding pathways	985
foods	732

forced convection	2314
fouling	368
fractals	1831
fractional Brownian motion	229
fractional crystallization	828, 2427
fractionation	2327
fragmentation	1521
free volume	2306
frequency response	2658
friction	1821
friction multiplier	12
fringe pattern	2661
front velocity	2631
froth height	2067
froth regime	2067
FTIR-ATR spectroscopy	795

G

gas absorption	241
gas concentration	2556
gas mixing	2585
gas phase	868
gas-phase polymerization	1251
gas purification	1701, 2549
gas removal	2556
gas separation	2556
gas turbines	2250
gas-liquid coexistence	1319
gas-liquid flow instability	1653
gas-liquid interface	1329
gas-solid flow	1375
gas-solid particle flow	2187
gas-solid reactions	324, 377, 2549, 2614
gas-solid systems	377, 1235, 1375, 2187
gasification	637
gel-filtration chromatography	2499
gels	159
generic model control	2318
Gibbs energy	1015, 1563
Gibbs surface	924
glass fibers thermoset polymer processing	2261
global optimization	1798
graded deposition	1037
gradient deformation	1184
gradient elution chromatography	1171
grain coating	559
granular media	1426
gravity degradation	469
gravity filtration	1153
gross error	1712
group contributions	1964
growth, particle	591

H

H ₂ S scrubber solution	1194
habituating control	604
hazardous waste	741
Hazop	97
head loss	819
heat- and mass-transfer coefficients	1319

heat convection	446
heat transfer	446, 773, 1500, 1821, 1898, 2341
heavy compounds	1964
helical coordinates	1071
helical flow	1071
helical pipe	1071
helix-helix docking	1015
Henry's Law correction	2300
high-index systems	619
high-purity distillation control	430
hindered diffusion	701, 1324
hindered settling	251
hollow fiber	1413, 2322
hollow-fiber bioreactor	415
holographic interferometry	185, 701
homogenization	1099
hopper growth	2227
hopping model	2399
hybrid combustors	2250
hydrate	435
hydraulic permeability	1826
hydraulic radius	1826
hydrazine	2282
hydrocyclone efficiency	1395
hydrodesulfurization	1513
hydrodynamic screening	701
hydrodynamics	1, 812, 1375, 2212, 2666
hydrogels	805
hydrogen	1602
hydrogen ion activity	171
hydrogen storage alloy	1349
hydrolysis	2108
hydrosols	1426
hypothesis testing	1712
hysteresis	1543
I	
IAST theory	1585
ideal adsorbed solution theory	1135
identification	1217
IEM model	2537
ignition	1898
image analysis	894, 1324
image processing	2140
immobilized cells	691
impeller flows	2177
impeller hydrodynamics	1
impeller stirred tank reactors	2177
impingement	1357
impinging streams	1667
impulsive heating	205
incipient fluidization	1368
indium phosphide	658
inertial impaction	1081
infinite media	481
infrared spectroscopy	1266
injection molding, co-	2661
inorganic membranes	58, 2131
inorganic supports	1403
input training	1471
input-output feedback	
linearization	2565
input-output modeling	1217
integral equations	389

integral modeling, crystallization ...	828
integral transformation	2549
interfaces	1955
interfacial tension	915
interferometry	185, 2140
intermolecular potentials	996
internal model control	2565
ion exchange	1165, 2653
ion-exchange chromatography	1676
ionic diffusion	2337
iontophoresis	1972
iron sulfate	171
isosteric heat of adsorption	536
isotachic train	45
isotope	2337
isotropic membranes	415

K

k-E model	2513
Kalman filters	2451
Kelvin-Helmholtz instability	1653
kinetic theory	1375
kinetically controlled reactions	1306
kinetics	286, 377, 658, 915, 1146 1321, 1500, 1513, 1521, 1581, 1723, 1779, 1790, 1864, 1874, 2047, 2108, 2393
Kirkwood-Buff solution theory	1005

L

laser Doppler anemometry	1329
laser flash photolysis	1306
lattice models	954
lead ions	2653
least squares	2327
light scattering	812, 974, 996
light scattering, forward	571
lignosulfonate	435
lime	435
linear eddy modeling	258
linear quadratic Gaussian control	1217
liquid	1602
liquid chromatography	2666
liquid dispersions	1851
liquid holdup	301
liquid-liquid extraction	488
liquid membranes	1403
liquid-phase adsorption	548
liquid structure	677
liquid-liquid separation	1395
lithium	1550
local composition model	1041
local density model	838
log-normal distribution	737
long-time kinetics	1513
long-range correlations	229
longitudinal dispersion	2013, 2029
lumped kinetics	1513
Lyapunov stability theory	2565

M

macroscopic	741
magnetic resonance imaging	251

mass convection	446
mass exchange networks	1843
mass exchanger model	1843
mass transfer	23, 200, 446, 2341
materials processing	324
mathematical modeling	805 1025, 1813
maximum likelihood	2415
maximum bypass	78
Maxwell construction	924
Maxwell rule	924
Maxwell-Stefan equations	2399
measurement	773, 2342, 2415
measure of chaos	1831
mechanical stress	1235, 2614
mechanisms	1723, 1874
melt crystallization	828
membrane filtration	764
membrane fouling	1826
membrane processes	368
membrane reactors	1998
membrane separations	1403
membranes	58, 368, 415, 764, 1403, 1413, 1826, 1998, 2131, 2212, 2322, 2342
memory integrals	2345
meniscus, extended	2140
metal ion separations	1403
metal-ceramic composites	2131
methane conversion	1598
methanol	795
Mg-Ni alloy	1349
micelle	991, 2058
microcellular	357
microdomains	805
microemulsion	159, 677, 907, 1165
microemulsion structure	1295
microencapsulation	1349
microfiltration	501, 764
microhydrodynamics	2212
micromixing	2537
micropore and surface diffusion	1581
microporous materials	907
microscopic	741
microscopy	1324
microvoids	2274
miscible displacements	229
mixing	1, 649, 741, 855, 1605 2513, 2537, 2585
mixing in three-phase reactors	649
mixing length	2513
mixing rules	683
mixing simulation	1605
mixtures	683
mobile-phase composition	548
model predictive control	604, 2098, 2333
model simplification	2658
modeling	258, 324, 828, 838, 1217, 1251, 1273, 1550, 1563, 1640, 1779, 1821, 1843, 1874, 2013, 2177, 2292, 2306, 2318, 2399, 2499, 2513, 2537, 2565, 2603, 2625
modeling, kinetic	286
modeling of monolith catalyst	2250
modified cost measure	78
molecular dynamics	346, 456

molecular simulation	959
molecular weight distribution	737, 1521
molecular weight modeling	1251
molecular-sieve	58
moments of molecular weight distribution	1521
monolayer	1955
monolith	337
monolithic catalyst	649, 1229, 1341
monostearin	1955
Monte Carlo simulation	272, 691, 974, 2292, 2300, 2306
morphology	1926
moving boundaries	324
moving-boundary-value problems	2345
moving reaction front	1915
moving-boundary problems	2342
multiphase processes	619
multicomponent	1585
multicomponent diffusion	732
multicomponent mass transfer	200
multicomponent mixtures	1044, 1585
multiloop feedback design	430
multiphase ozonolysis	1998
multiphase reactors	649
multiple chemical reactions	2356
multiple roll systems	1045, 2198
multiple steady states	1915
multiple stimuli	402
multiplicities	135
multirate estimation	2451
multiresponse estimation	2327
multisite Langmuir	1135
multivariable control	2439

N

nanoscale particles	559
naphthalene	446
negative ion	1701
network	272
neural network applications	430
neural networks	110, 1471, 2333
nitridation	2282
nitroglycerin	1572
NMR	894
non-Fickian diffusion	2345
nonisothermal	1581
non-Newtonian	1622
nonpathological biomaterials	2160
noncondensables	241
nonequilibrium	1852
nonequilibrium model	1852
nonionic	991
nonlinear	2098
nonlinear control	195
nonlinear model-based control	122
nonlinear modulator adsorption	1184
nonlinear process control	2318
nonlinear regression	2327
nonlinear science	1831
nonlinear system	135, 1831
nonlinear wave	190
nonminimum phase system	2658
NO _x emission control	712

nucleation	591, 1790, 2227
nucleation and growth	435
numerical analysis	1605
numerical methods	2342
numerical simulation	1605, 1833, 2212
numerical technique	2549

O

oblates	728
observability	2237
octadecylsilyl-silica gel	548
oil shale	446
oil in water	783
olefin-paraffin separations	509
olefins	509
oligomerization of olefins	317
operating criteria	148
operating cycles	1915
operating procedures	148
operational modification	1481
opposed jets	1333
optical probe	223
optimal control	1217, 2439
optimal Reynolds number	2314
optimization	45, 1337, 1798
optimization of product filterability	828
organics	1194, 1998
orientable lattice models	954
osmotic pressure	1010, 2131
output feedback control	619
output regulation	1217
oxidation	1864, 2108
oxidative coupling	1598

P

packed beds	301, 1165, 1500
packed-bed transfer	446
paper manufacturing	2603
paraffins	509
parameter estimation	571, 2565
parametric sensitivity	2625
partial molar volume	1005
partial segregation	855
partial specific volume	1005
particle deposition	1426, 1443
particle impaction	1081
particle interaction	1375
particle mixture	1389
particle separation	571
particle shape	1368
particle-size distribution	1204
particle swarm	1122
particle temperature	773
particle transport	737
particle in cell	1122
particle-wall interaction	2187
particles	559, 591, 1815
paste flow	741
pattern formation	1926
pattern recognition	110
peak concentration	1184
peptides	948, 949, 1972
percolation	229, 456, 677, 1295

percolation theory	1099
performance bounds	2083
performance diagnostics	110
periodic flow reversal	1915
periodic operation	1593
permeability	58, 2261, 2274
petroleum production	1099
pH-stat crystallizer	68
pharmaceutical	2476
phase compositions	924
phase equilibria	928, 996, 1041
phase holdup	1889
phase stability	1798
phase transition	488
phase transition extraction	488
phenol	337, 1864
phosphoric acid	185
phosphors	773
pillared clays	456
pipe bend	2187
plane bubbles	481
plant monitoring	2415
plasma etching	658
plug flow	1534
poly(methyl methacrylate)	357, 795
polydispersity	737
polyethylene	868, 1251
polymer	666, 737, 907, 1266, 1521, 1622, 2261, 2292, 2306, 2342
polymer blends	166
polymer degradation	1521
polymer melt flow	2661
polymer solutions	1333
polymer-penetrant systems	2345
polymer/solvent mixtures	2306
polymerization	159, 868, 907, 1353, 1640
polymorphism	68
polyolefin	1266
polypropylene	795
polystyrene	795
polyvinylpyrrolidone	812
population balance equations	1204
population balances	35, 525, 591, 1629
pore morphology	1826
pore network	214
porosity	2274
porous materials	907
porous media	214, 691, 749, 894, 1099, 1295, 2487
porous particles	880
post-filling process	2661
potential flow	2341
potentials of mean force	2150
powder/gas reaction	2643
powders	2476
power law	1099
power law fluids	1099
power law kinetics	1513
precipitation	518, 2150, 2476, 2653
predictive control	2083
preparative chromatography	1171
pressure	1833
pressure swing adsorption	201
principle component analysis	1712
process analysis	585

process control110, 195,
430, 604, 619, 868,
1217, 1353, 1481, 2083,
2318, 2333, 2439, 2451, 2565

process design135

process development741

process engineering200

process synthesis1456, 2427, 2522

prodrugs1972

product distribution637, 855

product identification637

product quality control122

production rate45

prolates728

propellant1572

protein aggregation996

protein folding985, 1015

protein partitioning991

protein precipitation2150

protein purification741, 1676, 2499

protein salting-out phase
equilibria996

protein separation996

protein solution biophysics974

protein solutions1005

protein transport415

proteins701, 764, 948, 949,
954, 1010, 1972, 2150

PSA1389

pseudo homogeneity23, 1368, 2625

pseudo-homogeneous mass
transfer23

pseudo-homogeneous 2-D model2625

pseudospectral methods737

pulse formation1653

pulsing flow2371

purification1184

pyrolysis1500

Q

qualitative reasoning97

R

random walks691, 880

random-phase approximation2150

rate enhancement1593

ratio1602

reactant conversion258

reaction23, 346, 880, 1273,
1874, 2643

reaction engineering1723

reaction fronts2631

reaction injection molding1273

reaction kinetics1235

reaction mixtures1513

reaction network modeling286

reaction rate2614

reactions324, 649, 1306,
2356, 2383, 2549, 2631

reactions with volume change324

reactive azeotropes2383

reactive distillation2383

reactive ion etching658

reactive precipitation2537

reactor design1037, 1321

reactor135, 148, 324, 649, 723,
855, 1346, 1353, 1915,
1998, 2177, 2508, 2625

reactor performance1534

reciprocating flow1299

rectangular duct481

redundancy2237

reference pressure928

reflex604

reforming637

reliability2237

remote control1543

removal of electronegative compound
.....1701

reptation666

residence time distribution518, 649,
2013, 2029, 2322

residence times2198

reverse flow reactors1915

reversed-phase liquid chromatography
.....536, 548

Reynolds number728, 1629

Reynolds stress2513

rheology677, 783, 1099, 2342

riser hydrodynamics1375

robust control2083, 2098, 2439

roll coating1045, 2198

rolling flow2465

rotary kiln2465

rotating flows2177

RTD1346

runaway2625

Rushton turbine1

S

saddle points585

safety148

salt1194, 2150

salt effects2150

saturated volumes924

scale-up741, 855

scanning sensors846

scheelite2337

Schrödinger Equations2666

scleroglucan1622

second virial coefficient1010

secondary motion1061

secondary nucleation68

sedimentation251, 1153

selectivity58, 258

self-propagating reactions2631

self-propagation2631

self-similarity2625

semibatch reactors855

semiconductor200

sensitivity coefficients2625

sensor network2237

sensor validation2415

sensors846, 1025

separation devices2585

separation sequence synthesis78

separation, vapor-organic liquid-
aqueous liquid-solid system2522

separation vector78

separations ...488, 509, 571, 996, 1165,
1184, 1194, 1395, 1403, 1413, 1456,
1629, 2383, 2393, 2427, 2499, 2522,
2556, 2585, 2666

separations, protein2150

sequential injection2661

series1346

sharp inequalities324

sharp interface model324

shear bacterial adhesion2160

shear thickening fluids728

shear thinning677

shear-induced diffusion764

shock layer theory45

shock waves45

short-dwell coater1833

shrinking core2614

sieve tray819

sieve tray entrainment2067

silica159, 2666

simple shear flow2637

simulation122, 214, 272, 389,
585, 880, 985, 1426, 1598, 1605,
1852, 1944, 2300, 2356, 2603, 2658

simultaneous separation1184

singular points585

size distribution1640

slide valves1481

slumping flow2465

SO₂ emission control712

software sensor2451

sol-gel process559

solid state kinetics1779, 1790

solids flow field, 3-D439

solids handling1687

solids processing1204, 1456, 2427

solubility1563

solubilization2653

solution crystallization1456, 2427

solvent association1146

solvent concentration1146

solvent effects536, 548, 1306

solvophobic theory536

SO_x removal2643

speciation171

spectroelectrochemistry1944

spherical drops1629

spherical-cap bubble2341

spheroidal particles1122

spheroids728, 1122

spinodal decomposition488

spiral flow1061

splashing1357

spouted bed439

spray drying732

spreading1357

stability368, 868, 1266, 2083

stability analysis1926

startup148

stationary sensors846

statistical estimation2415

step isotherm2393

steric mass action model1676

steroids recovery764

stirred tank1

stirred tank modeling2177

Stokes flow1122, 2212

sulfuric acid 171
 superadiabatic 1229
 supercritical 838
 supercritical carbon dioxide 357,
 2122
 supercritical components 683
 supercritical fluids 346, 389, 1306,
 1723, 2227, 2476
 supercritical water 1864, 1874, 2108
 supported membranes 1403
 surface analysis 2282
 surface energy 1357
 surface interaction 368
 surface tension 819, 1357
 surfactant 2058
 suspension polymerization 1640
 suspensions 251, 728
 synthesis 2522

T

tangent line 924
 Taylor vortex flow 723
 Taylor's hydrodynamic stability 812
 Taylor-Aris dispersion 1898
 Taylor-Couette flow 723
 temperature 773, 1550
 temperature control 868
 temperature distribution 1550
 temperature measurement 773
 temperature response 1273
 terminal velocity 481
 ternary mixtures 677
 tetralin 2122
 thermal decomposition 1521
 thermal property 1349
 thermal runaway 2625
 thermal stress 1341
 thermal wave 2631
 thermoacoustic convection 205
 thermodynamic modeling 1563
 thermodynamics 683
 thermoset polymer processing 2261
 thermosyphon 2140
 thickness diffusion layer 1821
 Thiele modulus 1321
 thin films 1926, 2131
 thin layer 1944

three-phase reactions 649
 three-dimensional modeling 2292
 three-phase flow 2508
 three-phase fluidization 267, 1889
 three-phase mass transfer 23
 tire 1500
 tissue sensor 1025
 titanium nitride synthesis 377
 toluene 2122
 total oxidation 2122
 TP flash 585
 tracer 518, 525, 1622
 trailing vortex 1
 trajectory analysis 1395
 transdermal 1972
 transdermal delivery 1972
 transient drop-size distribution 1851
 transient solid flow 1889
 transient uptake 2399
 transition metal catalyst 1251
 transport 1972
 transport coefficients 402
 transport in porous media 1295
 transport phenomena 1, 741
 transverse properties 846
 tray efficiency 2067
 tray spacing 2067
 trickle bed reactors 1653
 trickle beds 1593, 1653, 2371
 trihydroxide 525
 tubular membrane analysis 1403
 tubular membranes 1403
 tubular reactors 2625
 turbulence 737, 1375, 1815, 2513
 turbulence nonpremixed reacting
 flows 258
 turbulence suppression 1333
 turbulent flows 2513
 turbulent reacting flow 2356
 turbulent stresses 1329
 two-phase flow 1113, 2040,
 2187 2341, 2371

U

ultrafiltration 415, 1826, 2058
 Underwood equations 1843
 upflow 272

V

vacuum 1500
 van der Waals loop 924
 vapor 1602
 vapor pressure 1563
 vapor-liquid equilibria 683
 vapor-liquid equilibrium 1602
 viscoelastic 357
 viscosity fluids 481
 viscous fingering 749
 viscous liquids 2637
 visualization 1061, 2261, 2274
 voidage variation 1368
 voids in polymer composites 2261
 Volterra 2098
 volume change 324
 volumetric properties 1005
 vortex flow filtration 764
 vortex flow reactors 723

W

Wang-Sandler mixing rule 683
 water-gas shift 637
 wave generation 205
 wave model 2013, 2029
 wave velocity 190
 wear 1081
 wet-spinning 1281
 wetting 2261, 2274
 woven fabrics 1037

X

X-ray scattering 907
 Xanthan gum 783

Y

Y-Ba-Cu system 1779, 1790

Z

zeolites 58, 2047
 zero-order release 805
 zinc sulfate 171
 zircon 2337
 zwitterionic 991

TITLE INDEX TO VOLUME 41

A

Acetic Acid Oxidation and Hydrolysis in Supercritical Water
 2108
 Activity Coefficients in Nearly Athermal Model Polymer/Sol-
 vent Systems 2306
 Adaptive Multirate State and Parameter Estimation Strategies
 with Application to a Bioreactor 2451
 Adjustable Discretized Population Balance for Growth and
 Aggregation 591
 Adsorption Kinetics for the Case of Step and S-Shape Iso-
 therms 2393

Agglomeration during Precipitation: I. Tracer Crystals for
 Al(OH)₃ Precipitation 518
 Agglomeration during Precipitation: II. Mechanism Deduction
 from Tracer Data 525
 Analysis and Shape Inequalities for Gas-Solid Reactions with
 Changing Volume 324
 Analysis of Bacterial Migration: II. Studies with Multiple At-
 tractant Gradients 402
 Analysis of Diffusion in Polymers Using Evanescent Field
 Spectroscopy 795
 Analysis of Dispersed-Phase Systems: Fresh Perspective ..35

Analysis of Fiber Formation during Air-Gap Wet Spinning	1281
Analysis of Interface Evolution and Pattern Formation During CVD	1926
Analysis of Multidimensional Models of Monolith Catalysts for Hybrid Combustors	2250
Analysis of Shear-Dependent Bacterial Adhesion Kinetics to Biomaterial Surfaces	2160
Analysis of Zero-Reference-Pressure EoS/ G^E Models	928
Application of Multiresponse Estimation to a Wetted Wall Column Model	2327
Aspects of Flow of Power-Law Fluids in Porous Media	1099
Avoiding the Use of Critical Constants in Cubic Equations of State	1964
Axial Dispersion in Taylor-Couette Flow	723
Axial Dispersion of Solid Particles in a Continuous Rotary Kiln	2465

B

Balanced Realization for State-Space Identification and Optimal Output Regulation	1217
Binary Activity Coefficients from Microdroplet Evaporation	938
Binary Kinetics in the Y—Ba—Cu System: 1. Mixed Powders	1779
Binary Kinetics in the Y—Ba—Cu System: 2. Nanosized Particles	1790
Binary Mixture of Monostearin-Distearin Monolayers at the Air—Water Interface	1955
Binding of an Antifreeze Polypeptide to an Ice/Water Interface via Computer Simulation	959
Book Reviews	200, 741, 1353, 1831, 2342, 2666
Bubble Dissolution in Viscous Liquids in Simple Shear Flow	2637
Bypassing Eutectics with Extractive Crystallization: Design Alternatives and Tradeoffs	1456

C

Cake Formation in 2-D Cross-Flow Filtration	1443
Catalytic Oxidation of Toluene and Tetralin in Supercritical Carbon Dioxide	2122
Cautious On-Line Correction of Batch Process Operation	1337
Characterization of Lignosulfonate-Modified Hydrated Lime Powders	435
Characterization of Structural Inhomogeneities in Porous Media	894
Chromatographic Study on Liquid-Phase Adsorption on Octadecylsilyl-Silica Gel	548
Circulating Fluidized Bed as a Catalytic Reactor: Experimental Study	1534
Comparing Various Multicomponent Adsorption Equilibrium Models	1585
Computer Simulation of Protein Refolding Pathways and Intermediates	985
Concise Correlation of Sieve-Tray Heat and Mass Transfer	1319
Continuous Kinetics for Thermal Degradation of Polymer in Solution	1521
Continuous-Mixture Kinetics of Coke Formation from Olefinic Oligomers	317
Continuum Random Walk Simulations of Diffusion and Reaction in Catalyst Particles	880

Controlled Drop Tensiometer for Measuring Dynamic Interfacial and Film Tension	915
Convective Diffusion and Adsorption in a Swarm of Spheroidal Particles	1122
Convective Diffusion from a Dissolving Polymeric Particle	666
Convergence of a Series of Well-Stirred Reactors to Plug-Flow Reactor	1346
Copper Selective Adsorption with a Microemulsion-Based Resin	1165
Correlation of Permeability and Solute Uptake in Membranes of Arbitrary Pore Morphology	1826
Correlation of Vapor-Liquid Equilibrium Ratio of Hydrogen	1602
Cross-Flow Microfiltration with High-Frequency Reverse Filtration	501
Cross-Flow Ultrafiltration of Micellar Surfactant Solutions	2058

D

Design of Robust Constrained Model-Predictive Controllers with Volterra Series	2098
Detailed Chemical Kinetics Model for Supercritical Water Oxidation of C_1 Compounds and H_2	1874
Detailed Kinetics of Titanium Nitride Synthesis	377
Detection of Gross Errors in Data Reconciliation by Principal Component Analysis	1712
Development and Validation of a Simple Antigen—Antibody Model	974
Diffusion in Heterogeneous Media: Application to Immobilized Cell Systems	691
Diffusion in Gases in Polymer Blends Near the Lower Critical Solution Temperature	166
Dilute Turbulent Gas-Solid Flow in Risers with Particle-Particle Interactions	1375
Direct Numerical Simulation of Chemical Selectivity in Homogeneous Turbulence	2356
Direct Observation of Hindered Brownian Motion	1324
Direct-Contact Steam Condensation with Simultaneous Noncondensable Gas Absorption	241
Drag on Spheroidal Particles in Dilatant Fluids	728
Droplet Deposition and Momentum Transfer in Annular Flow	2040
Dynamic Modeling of Suspension Crystallizers, Using Experimental Data	571
Dynamic Simulation and Nonlinear-Model-Based Product Quality Control of a Crude Tower	122

E

Eddy Diffusivity of Solid Particles in a Turbulent Liquid Flow in a Horizontal Pipe	1815
Editor's Note on Special Section: Introduction to Cohn & Edsall Symposium Articles	948
Editorial	445
Effect of Gravity Degradation on Low-Speed Centrifuge Capillary Pressure Data, The	469
Effect of Liquid Surface Tension on Small Hole Distillation Sieve Tray Pressure Drop	819
Effect of Long-Range Correlations on Transport Phenomena in Disordered Media	229
Effect of Shell-Side Flows on Hollow-Fiber Membrane Device Performance	2322
Effect of Solute-Solute Correlations on Rapid Reactions in Supercritical Fluids	346

Effectiveness of Calcium Magnesium Acetate as Dual SO_2 - NO_x Emission Control Agent	712
Effects of Operating Conditions on Stability of Gas-Phase Polyethylene Reactors	868
Efficiency Estimation of Liquid-Liquid Hydrocyclones Using Trajectory Analysis	1395
Electrochemically Modulated Complexation Process for Gas Removal and Concentration	2556
Equal Area Rule and Algorithm for Determining Phase Compositions	924
Errata	1851
Estimation of Cross-Directional Properties: Scanning vs. Stationary Sensors	846
Evaporative Cooling of Air in Impinging Streams	1667
Excluded Volume Contribution to the Osmotic Second Virial Coefficient for Proteins	1010
Experimental and Theoretical Investigation of the Validity of Asymptotic Lumped Kinetics	1513
Experimental Investigation of the Polymer Melt Flow During Injection Post-Filling Process	2661
Experimental Measurement of Diffusion in Aqueous Polyvinylpyrrolidone Solutions	812
Experimental Measurements of Pressure Waves Generated by Impulsive Heating of a Surface	205
Experimental Study of the Periodic Operation of a Trickle-Bed Reactor	1593

F

Feedback Control of Nonlinear Differential-Algebraic-Equation Systems	619
Finely-Divided Powders by Carrier Solution Injection into a Near or Supercritical Fluid	2476
First-Order Corrections to Infinite Dilution Fugacity Coefficients Using Computer Simulation	2300
Flow Regimes of the Three-Phase Circulating Fluidized Bed	267
Flow through Curved Rectangular Channels of Large Aspect Ratio	1061
Foamed Gel Barriers in Porous Media: Breakdown and Permeability Evolution	2487
Fractal Nature of Viscous Fingering in Two-Dimensional Pore Level Models	749
Fractional Crystallization: Design Alternatives and Tradeoffs	2427

G

Gas Separations in Hollow-Fiber Adsorbers	1413
Global Optimization for the Phase Stability Problem	1798
Glucose Hydrolysis and Oxidation in Supercritical Water	637
Graded Deposition by Chemical Vapor Infiltration of Woven Fabrics	1037
Growth of Naphthalene Crystals from Supercritical CO_2 Solution	2227

H

Habituating Control Strategies for Process Control	604
Henry's Law and Synergism in Dilute Near-Critical Solutions: Theory and Simulation	389
High-Temperature Kinetic Study for the Reactive Ion Etching of InP in $\text{BCl}_3/\text{Ar}/\text{O}_2$	658

Hindered Settling of Rod-Like Particles Measured with Magnetic Resonance Imaging	251
Hydrogen Ion Activities and Species Distribution in Mixed Metal Sulfate Aqueous Systems	171

I

Impact of Process Design on the Multiplicity Behavior of a Jacketed Exothermic CSTR	135
Improved Representation of the Vapor-Liquid Equilibrium of $\text{HCl-H}_2\text{O}$	1041
Influence of Adsorbate Size and Adsorbent Heterogeneity on IAST	1135
Instability Phenomenon in an External-Loop Three-Phase Gas-Liquid-Solid Airlift Reactor	2508
Interfacial Force Field Characterization in a Constrained Vapor Bubble Thermosyphon	2140
Introduction to Cohn & Edsall Symposium Articles	948
Isomerization of 1-Butene on Silica-Alumina: Kinetic Modeling and Catalyst Deactivation	286
Isothermal Bistability Due to Remote Control: A Model for Selective Catalytic Oxidation	1543
Isotope Study on Diffusion in CaSO_4 Formed During Sorbent-Flue-Gas Reaction	2337

L

Letters to the Editor	737, 1044, 2341
Limiting Cases and Approximate Solutions for Fixed-Bed Reactors with Periodic Flow Reversal	1915
Linear Eddy Modeling of Reactant Conversion and Selectivity in Turbulent Flows	258
Liquid Holdup in Rotating Packed Beds: Examination of the Film Flow Assumption	301

M

Mass and Heat Transfer in Crushed Oil Shale	446
Mass Transfer with Chemical Reaction in Thin-Layer Electrochemical Reactors	1944
Mathematical Model for a Dissolving Polymer, A	2345
Mathematical Model of Mass Transport through Dispersed-Phase Polymer Networks	805
Mathematical Model on the Sensing Behavior of a Biooxidation Biosensor	1025
Maximum Likelihood Data Rectification: Steady-State Systems	2415
Mean Velocity Field Relative to a Rushton Turbine Blade	1
Measurement of Protein Diffusion in Dextran Solutions by Holographic Interferometry	701
Mechanistic Analysis of Sieve Tray Froth Height and Entrainment, A	2067
Mechanistic Description and Experimental Studies of Electrochromatography of Proteins	2499
Microencapsulation of Mg-Ni Hydrogen Storage Alloy	1349
Mixing, Reaction, and Precipitation: Interaction by Exchange with Mean Micromixing Models	2537
Model for Colloidal Fouling of Membranes	368
Model-Based Approach to Automated Hazard Identification of Chemical Plants	97
Modeling and Dynamic Simulation of a Bleach Plant	2603
Modeling Chemically Active Liquid Membranes in Tubular Inorganic Supports	1403

Modeling Membrane Filtration of Protein and Cell Suspensions in a Vortex Flow Filtration System	764
Modeling Molecular Weight Development of Gas-Phase α -Olefin Copolymerization	1251
Modeling of a Monolithic Catalyst with Reciprocating Flow	1229
Modeling of Heat Generation in Ammonia-Treated Solid Rocket Propellant	1572
Modeling of Polymer Erosion in Three Dimensions: Rotationally Symmetric Devices	2292
Modeling Segregation of Solute Material during Drying of Liquid Foods	732
Modifications to Model IV Fluid Catalytic Cracking Units to Improve Dynamic Performance	1481
Molecular Dynamics Simulation of Diffusion in Pillared Clays	456
Molecular Thermodynamic Model for Helix-Helix Docking and Protein Aggregation	1015
Molecular Thermodynamic Properties of Protein Solutions from Partial Specific Volumes	1005
Molecular Thermodynamics for Salt-Induced Protein Precipitation	2150
Monolith Froth Reactor: Development of a Novel Three-Phase Catalytic System	337
Monte Carlo Network Simulation of Horizontal, Upflow and Downflow Depth Filtration	272
Multiphase Ozonolysis of Organics in Wastewater by a Novel Membrane Reactor	1998
Multiple Roll Systems: Residence Times and Dynamic Response	2198
Multiple Role Systems: Steady-State Operation	1045
Multivariable Nonlinear and Adaptive Control of a Distillation Column	195

N

Necessary and Sufficient Conditions for Reactive Azeotropes in Multireaction Mixtures	2383
Neural Model-Predictive Control of Distributed Parameter Crystal Growth Process	2333
New Concept of Gas Purification by Electron Attachment	1701
New Discretization Procedure for the Breakage Equation	1204
New Look at Wave Analogy for Prediction of Bubble Terminal Velocities	481
New Sorbents for Olefin/Paraffin Separations by Adsorption via π -Complexation	509
Newtonian Drop Impact with a Solid Surface	1357
Nitridation and CVD Reactions with Hydrazine	2282
Noncatalytic Gas-Solid Reactions and Mechanical Stress Generation	1235
Nonequilibrium Model for Dynamic Simulation of Tray Distillation Columns, A	1852
Nonlinear Controller for Batch Crystallization: Development and Experimental Demonstration	2318
Novel Method for Noncontact Measurement of Particle Temperatures	773
Novel Preparation Techniques for Thin Metal-Ceramic Composite Membranes	2131
Nucleation, Agglomeration and Crystal Morphology of Calcium Carbonate	68
Nucleation and Growth in Microcellular Materials: Supercritical CO ₂ as Foaming Agent	357
Numerical Computation of Turbulent Gas-Solid Particle Flow in a 90° Bend	2187

Numerical Model for the Vacuum Pyrolysis of Scrap Tires in Batch Reactors	1500
Numerical Simulation of Flow in Helical Ducts	1071
Numerical Studies of Multicomponent Chromatography Using pH Gradients	1171
Numerical Study on Hydrodynamics of Short-Dwell Paper Coaters	1833

O

On the Laboratory That Produced the Book Proteins, Amino Acids and Peptides	949
On the Nonlinear Wave Theory for Dynamics of Binary Distillation Columns	190
Optimal Linear Regulation with Hard Constraints	2439
Optimal Multiloop Feedback Design Using Simulated Annealing and Neural Network	430
Optimization and Modeling of the Crystallization Process in a Cascade with Backmixing	828
Organic Microporous Materials Made By Bicontinuous Microemulsion Polymerization	907
Origin of Disturbances in Cocurrent Gas-Liquid Packed Bed Flows	1653
Oscillatory, Creep and Steady Flow Behavior of Xanthan-Thickened Oil-in-Water Emulsions	783

P

Partitioning of Proteins Using Two-Phase Aqueous Surfactant Systems	991
Performance Bounds for Robust Quadratic Dynamic Matrix Control with End Condition	2083
Phase Transition Extraction Using Solvent Mixtures with Critical Point of Miscibility	488
Phenomenological Model for Dispersed Bubbly Flow in Pipes	12
Potentialities and Limitations of Mixing Simulations	1605
Pressure Filtration of Flocculated Suspensions	1687
Process Analysis in the Complex Domain	585
Product Distribution Paradox on Scaling Up a Stirred Batch Reactor, A	855
Production Rate of an Isotactic Train in Displacement Chromatography	45
Properties of Pulsing Flow in a Trickle Bed	2371
Protein Transport in Ultrafiltration Hollow-Fiber Bioreactors	415
PSA Performance of Densely Packed Adsorbent Beds	1389

R

Rapid Estimation of Cylinder Erosion Rates in Abrasive Dust-Laden Streams	1081
Reaction Network Model for Phenol Oxidation in Supercritical Water, A	1864
Reaction Rate Modeling in Noncatalytic Gas-Solid Systems: Species Transport and Mechanical Stress	2614
Reactions at Supercritical Conditions: Applications and Fundamentals	1723
Reactor Operating Procedures for Startup of Continuously-Operated Chemical Plants	148
Reducing Data Dimensionality through Optimizing Neural Network Inputs	1471
Redundant Sensor Network Design for Linear Processes	2237
Reformulation of Wong-Sadler Mixing Rule for Cubic Equations of State	683

Residence Time Distribution in Three-Phase Monolith Reactor	649
Revisiting Approximate Solutions for Batch Adsorbers: Explicit Half Time	426
Robust Output Regulation for Nonlinear Chemical Processes with Unmeasurable Disturbances	2565
Role of Porosity in Filtration: XII. Filtration with Sedimentation	1153

S

Salt Extraction from Hydrogen-Sulfide Scrubber Solution Using Electro dialysis	1194
Salting Out of Aqueous Proteins: Phase Equilibria and Inter-molecular Potentials	996
Second Law Analysis on Fractal-Like Fin under Crossflow	2314
Sensitivity Analysis of Tubular Packed-Bed Reactor by Pseudohomogeneous 2-D Model	2625
Separation and Recovery of Lead by Cation Exchange Process Combined with Precipitation	2653
Separation Devices for Gas Mixing	2585
Separation Vector Formulation for the Synthesis of Multi-component Separation Sequences	78
Shear Thinning in Ternary Bicontinuous and Water-in-Oil Microemulsions	677
Silica Gels Made by Bicontinuous Microemulsion Polymerization	159
Simple Lattice Model of Proteins Incorporating Directional Bonding and Structured Solvent	954
Simplification Study on Dynamic Models of Distributed Parameter Systems	2658
Simplified Local Density Model for Adsorption over Large Pressure Ranges	838
Simulation of a Catalytic Membrane Reactor for Oxidative Coupling of Methane	1598
Simulation of Diffusion in Zeolitic Structures	2399
Simulation of Hydrosol Deposition in Granular Media	1426
Simultaneous Autocatalytic Reaction and Diffusion in a Slab	1321
Simultaneous Concentration and Purification through Gradient Deformation Chromatography	1184
Single-Step Thermal Method to Measure Intracrystalline Mass Diffusion in Adsorbents	2047
Sol-Gel Preparation and Properties of Alumina Adsorbents for Gas Separation	559
Solution of Equations Describing Fluid-Solid Reactions in Packed Columns	2549
Solvation Effects on Reactions of Triplet Benzophenone in Supercritical Fluids	1306
Solvent Concentration Dependence of Solute Distribution Coefficient	1146
Solvent Effect on Adsorption Phenomena in Reversed-Phase Liquid Chromatography	536
Stagnant Film Model for Effect of Diffusional Layer Thickness on Heat Transfer and Exerted Friction	1821
Steady-State Drop-Size Distributions in High Holdup Fraction Dispersion Systems	1640
Steady-State Modeling and Experimental Measurement of a Baffled Impeller Stirred Tank	2177
Studies of Aggregation Effects on SO_x Removal by Limestone Powder	2642
Surface Interactions in a Shear Field	1266
Synthesis of Separation System Flowsheets	2522

T

Taylor Dispersion in a Polymer Solution Flowing in a Capillary Tube	1622
Ternary Microemulsions as Model Disordered Media	1295
Theoretical Aspects of Self-Propagating Reaction Fronts in Condensed Medium	2631
Theoretical Prediction of Electric Field-Enhanced Coalescence of Spherical Drops	1629
Theory for Fast-Igniting Catalytic Converters, A	1898
Theory of Gas Diffusion and Permeation in Inorganic Molecular-Sieve Membranes	58
Thermal Stresses in Monolithic Catalysts	1341
Thermodynamic Modeling of Concentrated Aqueous Electrolyte and Nonelectrolyte Solutions	1563
3-D Laminar Stationary Flow over a Porous Surface with Suction: Description at Pore Level	2212
3-D Mapping of Solids Flow Fields in Multiphase Reactors with RPT	439
Three-Dimensional Temperature and Current Distribution in a Battery Module	1550
Three-Phase Mass Transfer: Improved Pseudo-Homogeneous Model	23
Tortuosity of Bubble Rise Path in a Liquid-Solid Fluidized Bed: Effect of Particle Shape	1368
Transdermal Delivery of Peptide and Protein Drugs: an Overview	1972
Transient Discharge of Solid Particles from Upper Outlet of Vertical Bubble Columns	1889
Transient Profiles in Ion-Exchange Displacement Chromatography	1676
Transient Temperature Model for Reaction Injection Molding	1273
Turbulence Structure in Bubble Disengagement Zone: Role of Polymer Addition	1329
Turbulence Suppression by Polymer Solutions in Opposed Jets Flow	1333
Turbulent Flow in Channels in Terms of Local Turbulent Shear and Normal Stresses	2513
Two-Phase Flow in the Vicinity of an Elongated Bubble in a Fluidized Bed	1113

U

Underwood-Like Model for a Finite Mass Exchanger, An	1843
Unified Excitation and Performance Diagnostic Adaptive Control Framework	110
Use of Optical Probes to Characterize Bubble Behavior in Gas-Solid Fluidized Beds	223

V

Validity of Isothermality in Adsorption Kinetics of Gases in Bidispersed Solids	1581
Variation of Phosphoric Acid Diffusion Coefficient With Concentration	185
Visualization and Simulation of Bubble Growth in Pore Networks	214

W

Wave Model for Longitudinal Dispersion: Analysis and Applications	2029
Wave Model for Longitudinal Dispersion: Development of the Model	2013
Wetting of Fiber Mats for Composites Manufacturing: I. Visualization Experiments	2261
Wetting of Fiber Mats for Composites Manufacturing: II. Air Entrapment Model	2274

INSTRUCTIONS FOR CONTRIBUTORS

AICHE Journal is a broad-based archival journal for the publication of significant research results in all areas of chemical engineering. Four types of manuscripts are published in the *Journal*: Journal Reviews, Research Papers, R&D Notes, and Letters to the Editor. There are no page charges.

Six copies of manuscripts of *Research Papers* and *Journal Reviews*, and five copies of *R & D Notes* and *Letters to the Editor* should be submitted to Dr. Matthew V. Tirrell, Editor, *AICHE Journal*, Department of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN 55455, phone (612) 625-5823, fax (612) 624-6564. Papers should not be submitted directly to Associate Editors.

JOURNAL REVIEWS

Journal Reviews are critical reviews of important areas of chemical engineering, written to inform the general reader of the background, state of the art, and outstanding research problems. *Journal Reviews* are particularly encouraged in nontraditional areas and in areas where new research will be stimulated. Authors planning a *Journal Review* should consult the Editor or an appropriate Consulting Editor.

RESEARCH PAPERS

Full-length *Research Papers* describe important new experimental or theoretical results and normally receive three or four reviews. There is no fixed maximum length for full-length papers, but they should rarely exceed 30 double-spaced, typewritten pages including figures and tables. Multipart papers are discouraged; authors submitting multipart manuscripts that are acceptable on technical grounds may be asked to combine the results into a single paper prior to publication. Research papers should represent a significant, not incremental, advance in chemical engineering research.

The format for full-length research papers is described below.

Title and Authors: The title should emphasize the principal objective and contain no more than 80 letters and spaces. Use first names and middle initials and, in a footnote, indicate the author to whom correspondence should be directed. Give the address, with the zip code, of the institution where the work was done and show in a footnote, if desired, any author's address that is different.

Topical Heading and Keywords: Papers are published under the group headings of the following nine topical areas: 1. Fluid Mechanics and Transport Phenomena; 2. Particle Technology and Fluidization; 3. Separations; 4. Process Systems Engineering; 5. Reactors, Kinetics and Catalysis; 6. Materials, Interfaces and Electrochemical Phenomena; 7. Thermodynamics; 8. Bioengineering, Food and Natural Products; and 9. Energy and Environmental Engineering. Please indicate which category you prefer for your paper. Otherwise, the Editor will select a category. Up to five keywords should be provided on the title page, which will be used for indexing and information retrieval systems.

Abstract: The abstract should state the objectives and present salient conclusions in no more than 150 words. The abstract should be submitted on a separate manuscript page.

Introduction: The paper must begin with an introduction that is written for the general reader of the *Journal*, not for the specialist. This section should describe

- the objectives and relevance
- significant prior work
- major results and conclusions

Body: After the Introduction, each author may choose the format best suited to the paper. Writing should be concise, eliminating details that are not essential to the development and are readily available in theses, previously published papers, or accessible reports.

Supplementary material: Details that are not essential to the development and not easily accessible elsewhere should be submitted in triplicate as a separate supplement. This material will be deposited on microfilm and a footnote given in the published paper explaining how to obtain a microfilm or hard copy. Often, appendices are better handled as supplements.

Units: The Systems International d'Unités (SI system) must be used for all dimensional quantities. (A copy of *SI for AICHE* is available from the New York Office.)

Notation: Symbols used in the text or in equations should be collected and identified in a table of notation near the end of the paper prior to the Literature Cited section. Roman symbols should be listed alphabetically in the table first, then Greek. The symbols should be those commonly used in chemical engineering and in papers previously published in the area investigated. A notation section is not necessary if all symbols are defined in the text.

Literature Cited: References cited in the text should be listed on a separate sheet in alphabetical order according to author, patentee, or editor. Give complete information, including the names of all authors, the title of the paper, patent and report, page numbers, and publication date. References should be cited in the text by the last name of the author (both authors when only two, first author and et al. when more than two) and year. Use the journal abbreviations preferred by *Chemical Abstracts*. Do not number references.

R&D NOTES

R&D Notes are short reports that develop the essence of a new experimental or theoretical concept, present new experimental data, elaborate on a previous *Journal* article, etc. They would rarely exceed eight double-spaced, typewritten pages including figures and tables, and normally receive a single review. Format may vary with the author's preference, but notation, units, and literature citations must conform to those for Research Papers. There is no abstract, but keywords are required.

LETTERS TO THE EDITOR

Letters to the Editor may be submitted on any subject of interest to the *Journal* readership. Letters commenting on previously published articles will normally be sent to the authors of the previous publication for possible response prior to publication. A letter should not normally exceed two double-spaced typewritten pages.

MANUSCRIPT PREPARATION

All manuscripts and equations should be neatly typed with double spacing on 8½ by 11 in. or A40 paper. Should any symbols be handwritten, they should be clearly identified in the margins the first time they are used, as should ambiguous typewritten symbols such as one, the letter l, zero, and the letter O.

Illustrations (Figures). Drawings and charts should be prepared neatly in a clear format using typeset not typewritten, letters, symbols, and numbers. Photo-reproducible sharp copies of drawings in an 8 in. × 10 in. format are preferred. Photographs are not accepted unless essential to the paper; they should be sharp glossy black and white prints. The size of the lettering should be proportional to that of the drawing; it must be a minimum of ¼ in. (3 mm) high when the illustration is reduced to 3¼ in. wide. Legend should be placed in the white space of the drawings, not in the caption. Each figure should be numbered; a separate, typed list of succinct captions must be provided. Ticks may be used on figures where only a trend or comparison is of significance. If, however, the figure is to be used to show data or theoretical predictions where the numerical values of the ordinate and abscissa must be read, the figure should be drawn with a grid in which spacing is commensurate with the accuracy implied in the plot.

Residence Time Distribution in Three-Phase Monolith Reactor	649
Revisiting Approximate Solutions for Batch Adsorbers: Explicit Half Time	426
Robust Output Regulation for Nonlinear Chemical Processes with Unmeasurable Disturbances	2565
Role of Porosity in Filtration: XII. Filtration with Sedimentation	1153

S

Salt Extraction from Hydrogen-Sulfide Scrubber Solution Using Electrodialysis	1194
Salting Out of Aqueous Proteins: Phase Equilibria and Inter-molecular Potentials	996
Second Law Analysis on Fractal-Like Fin under Crossflow	2314
Sensitivity Analysis of Tubular Packed-Bed Reactor by Pseudohomogeneous 2-D Model	2625
Separation and Recovery of Lead by Cation Exchange Process Combined with Precipitation	2653
Separation Devices for Gas Mixing	2585
Separation Vector Formulation for the Synthesis of Multi-component Separation Sequences	78
Shear Thinning in Ternary Bicontinuous and Water-in-Oil Microemulsions	677
Silica Gels Made by Bicontinuous Microemulsion Polymerization	159
Simple Lattice Model of Proteins Incorporating Directional Bonding and Structured Solvent	954
Simplification Study on Dynamic Models of Distributed Parameter Systems	2658
Simplified Local Density Model for Adsorption over Large Pressure Ranges	838
Simulation of a Catalytic Membrane Reactor for Oxidative Coupling of Methane	1598
Simulation of Diffusion in Zeolitic Structures	2399
Simulation of Hydrosol Deposition in Granular Media	1426
Simultaneous Autocatalytic Reaction and Diffusion in a Slab	1321
Simultaneous Concentration and Purification through Gradient Deformation Chromatography	1184
Single-Step Thermal Method to Measure Intracrystalline Mass Diffusion in Adsorbents	2047
Sol-Gel Preparation and Properties of Alumina Adsorbents for Gas Separation	559
Solution of Equations Describing Fluid-Solid Reactions in Packed Columns	2549
Solvation Effects on Reactions of Triplet Benzophenone in Supercritical Fluids	1306
Solvent Concentration Dependence of Solute Distribution Coefficient	1146
Solvent Effect on Adsorption Phenomena in Reversed-Phase Liquid Chromatography	536
Stagnant Film Model for Effect of Diffusional Layer Thickness on Heat Transfer and Exerted Friction	1821
Steady-State Drop-Size Distributions in High Holdup Fraction Dispersion Systems	1640
Steady-State Modeling and Experimental Measurement of a Baffled Impeller Stirred Tank	2177
Studies of Aggregation Effects on SO_x Removal by Limestone Powder	2642
Surface Interactions in a Shear Field	1266
Synthesis of Separation System Flowsheets	2522

T

Taylor Dispersion in a Polymer Solution Flowing in a Capillary Tube	1622
Ternary Microemulsions as Model Disordered Media	1295
Theoretical Aspects of Self-Propagating Reaction Fronts in Condensed Medium	2631
Theoretical Prediction of Electric Field-Enhanced Coalescence of Spherical Drops	1629
Theory for Fast-Igniting Catalytic Converters, A	1898
Theory of Gas Diffusion and Permeation in Inorganic Molecular-Sieve Membranes	58
Thermal Stresses in Monolithic Catalysts	1341
Thermodynamic Modeling of Concentrated Aqueous Electrolyte and Nonelectrolyte Solutions	1563
3-D Laminar Stationary Flow over a Porous Surface with Suction: Description at Pore Level	2212
3-D Mapping of Solids Flow Fields in Multiphase Reactors with RPT	439
Three-Dimensional Temperature and Current Distribution in a Battery Module	1550
Three-Phase Mass Transfer: Improved Pseudo-Homogeneous Model	23
Tortuosity of Bubble Rise Path in a Liquid-Solid Fluidized Bed: Effect of Particle Shape	1368
Transdermal Delivery of Peptide and Protein Drugs: an Overview	1972
Transient Discharge of Solid Particles from Upper Outlet of Vertical Bubble Columns	1889
Transient Profiles in Ion-Exchange Displacement Chromatography	1676
Transient Temperature Model for Reaction Injection Molding	1273
Turbulence Structure in Bubble Disengagement Zone: Role of Polymer Addition	1329
Turbulence Suppression by Polymer Solutions in Opposed Jets Flow	1333
Turbulent Flow in Channels in Terms of Local Turbulent Shear and Normal Stresses	2513
Two-Phase Flow in the Vicinity of an Elongated Bubble in a Fluidized Bed	1113

U

Underwood-Like Model for a Finite Mass Exchanger, An	1843
Unified Excitation and Performance Diagnostic Adaptive Control Framework	110
Use of Optical Probes to Characterize Bubble Behavior in Gas-Solid Fluidized Beds	223

V

Validity of Isothermality in Adsorption Kinetics of Gases in Bidispersed Solids	1581
Variation of Phosphoric Acid Diffusion Coefficient With Concentration	185
Visualization and Simulation of Bubble Growth in Pore Networks	214

W

Wave Model for Longitudinal Dispersion: Analysis and Applications	2029
Wave Model for Longitudinal Dispersion: Development of the Model	2013
Wetting of Fiber Mats for Composites Manufacturing: I. Visualization Experiments	2261
Wetting of Fiber Mats for Composites Manufacturing: II. Air Entrapment Model	2274

